

ABSTRACT OF THE DISCLOSURE

A lithium-manganese complex oxide represented by a formula $\text{Li}[\text{Mn}_{2-x-y}\text{Li}_x\text{M}_y]\text{O}_{4+\delta}$ (wherein M is at least one element selected from the groups IIa, IIIb and VIII of the 3rd and 4th periods, and $0.02 \leq x \leq 0.10$, $0.05 \leq y \leq 0.30$ and $-0.2 \leq \delta \leq 0.2$), having a spinel crystalline structure of 0.22° or less of half value width of the (400) plane of powder X-ray diffraction by $\text{CuK}\alpha$ and an average diameter of crystal grains by SEM observation of $2 \mu\text{m}$ or less, and a spinel crystalline structure lithium-manganese complex oxide having a BET specific surface area of $1.0 \text{ m}^2 \cdot \text{g}^{-1}$ or less; production methods thereof; and a lithium secondary battery which uses the lithium-manganese complex oxide as the positive electrode active material are described.